Allocating Resources to Address State-level Substance Abuse Prevention Priorities

Guidance for States

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Foreword

All States, Jurisdictions, and several Tribal Entities (hereafter referred to as States) have received Federal funding from the Substance Abuse and Mental Health Services Administration, (SAMHSA) Center for Substance Abuse Prevention (CSAP) to establish an epidemiological workgroup. These epidemiological workgroups are a network of people and organizations that bring analytical and other data competencies to substance abuse prevention. Their mission is to integrate data about the nature and distribution of substance use and related consequences into ongoing assessment, planning, and monitoring decisions at State and community levels. Their deliberate focus is on using data to inform and enhance prevention practice.

In some cases, the epidemiological workgroup is part of a broader Strategic Prevention Framework State Incentive Grant (SPF SIG) funded by CSAP. CSAP has also made funds available to support an epidemiological workgroup in all other States and Jurisdictions not receiving SPF SIG funds. In both cases, the epidemiological workgroup promotes data driven decision-making in the State substance abuse prevention system by bringing systematic data-driven thinking to guide effective and efficient use of prevention resources.

Such data-driven decision making necessitates the development of a State monitoring system for substance abuse. Such a system can help inform assessment ("*What do substance use and related consequences look like in the State?*"), planning ("*What are the current prevention priorities that emerge after needs assessment?*"), and monitoring/evaluation activities ("*How are we doing in our efforts to address these issues?*") to enhance substance abuse prevention.

Within the State Epidemiological Outcome Workgroup (SEOW) effort, CSAP has defined a series of data driven activities to assist States further develop their State monitoring systems by:

- Developing a key set of indicators to describe the magnitude and distribution of substance related consequences and consumption patterns across the State.
- Collecting, analyzing, interpreting, and communicating these data through the development of an epidemiological profile
- Establishing prevention priorities for State resources based on data analyzed and interpreted through the profiling process
- Allocating resources to populations in need for established priorities
- Developing a systematic, ongoing monitoring system of state substance-related consumption patterns consequences and to track progress on addressing prevention priorities, detect trends and use such information to redirect resources if needed.

To assist States with these tasks, CSAP has developed several resources. The State Epidemiological Data System (SEDS) presents a preliminary set of constructs and indicators identified as relevant, important, and available for substance use prevention planning. SEDS can be found at http://www.epidcc.samhsa.gov/. Five guidance documents also serve to assist States

in their efforts to implement data-driven substance abuse prevention planning. These documents are:

Developing a State Epidemiological Profile for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups

Setting Priorities for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups

Allocating Resources to Address State-level Substance Abuse Prevention Priorities: Guidance for States

Developing a State-level Substance Abuse Monitoring System: Guidance for States

State Epidemiological Outcome Workgroups: Lessons Learned

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Introduction

States face a wide array of alcohol, tobacco, and other drug use-related problems, and multiple factors affect States' response to these realities. Often the magnitude and severity of the problem and the level of public concern has influenced whether and how a State responds to a particular substance use pattern or consequence. As a result, States make choices about which patterns of use and consequences are priority concerns and how to channel available funding streams toward these priorities. Other guidance documents developed for the State Epidemiological Outcome Workgroups (SEOWs) have asserted that these decisions must be based on a data that identifies the substance use patterns and related consequences that have the most significant impacts on the State as a whole. Once such priorities are established by data, resources should then be allocated based on data about the problems in order to address them. As such, how States allocate resources is informed by data about what they are trying to change.

This document describes methods for developing a data-driven process for allocating resources to prevention priorities with the explicit goal of using data to allocate sufficient resources to improve targeted health outcomes. The guidance in this document builds on information previously provided in *Developing a State Epidemiological Profile for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups* and *Setting Priorities for Substance Abuse Prevention: Guidance for State Epidemiological Outcome Workgroups*. Specifically, it:

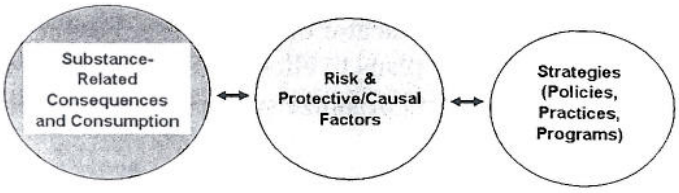
- Describes alternate approaches for using data to allocate resources;
- Provides examples of data-guided approaches that States have used for allocating resources; and
- Discusses emergent issues and lessons derived from States' experience of using data to inform resource allocations.

To these ends, the document will: 1) provide basic descriptions of four data-guided allocation planning models; 2) detail the rationale for the use of each model, as well as some of their benefits and potential drawbacks; 3) describe how various types and combinations of data indicators may inform selection and application of an allocation model (and ultimately grant recipients); and 4) provide examples of applying data-guided planning models that States have used for resource allocation.

States are often in the position of needing to allocate resources for various purposes and with respect to different funding streams and programs. In this document, the focus is on resource allocation for the Strategic Prevention Framework – State Incentive Grantees (SPF SIGs). That is, it is focused on allocating SPF SIG funds to address SPF SIG priorities with the explicit goal of improving substance use and related consequences/outcomes. Although the focus herein is on allocating SPF SIG resources, the methods and guidance provided will be informative to resource allocation for purposes other than the SPF SIGs.

Outcome-Based Prevention

Figure 1: Outcomes-Based Prevention Model



The work of the SEOWs is framed by an outcomes-based prevention model (Figure 1) which grounds prevention in a solid understanding of alcohol, tobacco and other drug use and related consequences. The State epidemiological profiles developed by the SEOWs summarize the nature, magnitude and distribution of substance use and related consequences for the State. Understanding the nature and extent of the array of substance use and related consequences in the State is a critical first step for determining prevention priorities. Following the outcomes-based prevention model, once priorities are established, planners then identify the factors influencing the prioritized use patterns and consequences to align relevant and effective strategies to address them.

CSAP recommends that State epidemiological profiles and related prioritization processes predominantly focus on substance-related consumption and consequences as they implement an outcomes-based approach to prevention.

CONSUMPTION:

Consumption is defined as the use and high-risk use of alcohol, tobacco, and illicit drugs. Consumption includes patterns of use of alcohol, tobacco, and illicit drugs, including initiation of use, regular or typical use, and high-risk use.

CONSEQUENCES:

Substance-related consequences are defined as adverse social, health, and safety consequences associated with alcohol, tobacco, or illicit drug use. Consequences include mortality and morbidity and other undesired events for which alcohol, tobacco, and/or illicit drugs are clearly and consistently involved. Although a specific substance may not be the single cause of the consequence, scientific evidence must support a link to alcohol, tobacco, or illicit drugs as a contributing factor to the consequence.

Focusing on consumption and consequences in the prioritization process does not by any means undermine the importance of measuring and understanding causal factors that lead to substance abuse and substance abuse-related consequences. Understanding the factors that contribute to substance use and related problems (also referred as "risk and protective factors" or "causal factors") is the logical next step after the State has developed a full understanding of the substance use patterns and consequences it seeks to address and determined priorities. It is an activity that may occur concurrently with data-driven resource allocation.

The goal of data-driven resource allocation is to provide adequate resources to produce positive outcomes vis-à-vis substance priorities. The following steps frame such an outcomes-based allocation process:

- Determine a State planning model which defines the approach for allocating SPF SIG funds based on the nature of the specific priority(ies)
- Identify indicator data that describes the substance prevention priority(ies) so that ***how*** the State plans to allocate resources matches what the State is trying to change
- Gather and organize such data (if not already available from the State Epidemiological Profile)
- Apply indicator data as framed by the resource allocation planning model approach

Resource Allocation Planning Models

Once priority concerns have been identified, decisions must be made about how best to distribute available resources. That is, a process must be adopted that will guide how funding is dispersed among a certain number of entities to address the problem(s) targeted for intervention. The goal of a resource planning model is to develop an approach for addressing priorities in a manner that is likely to achieve desired impact in light of existing resources. In developing a resource planning model, State administrators must consider, and ultimately reflect, a firm understanding of the nature of substance priorities as well as all available resources, financial and non-financial, in the State.

Three basic resource planning models for distribution of SPF SIG funds are described below: *Equity*, *Highest Contributor*, and *Highest Rate* (sometimes referred to as *Highest Need*). States may also use a combination of these models to form a *Hybrid* model, and some add other features of context to stratify such planning approaches. Other models of resource allocation exist; however, the models described here provide clear examples of methods States can use to balance the desire to change outcomes with the realities of limited resources.

Equity Planning Model

The equity resource planning model, as its name implies, dictates equitable distribution of funds across all sub-State communities. According to this model, the same amount of money is awarded to each community that, taken together, constitute the State, without applying other criteria. Variations of an equity model might adjust the amount of money provided by overall population so that funds are allocated on a per capita basis.

This model is appropriate, generally, only if two criteria are met.

- **Data indicate that the priority substance use pattern or substance-related consequence is distributed evenly across the State.** Certain substance use patterns and substance-related consequences may well be widely distributed across the State at levels high enough for concern (e.g., underage drinking) and thus suggest the appropriateness of an equity model. Other problems, however, may not. For example, in a State where methamphetamine use and related harm is heavily concentrated in only one region of a State, the State must seriously considered the wisdom of providing funds at to all entities to address methamphetamine.

- **The State has enough resources to fund each entity across the State at a level adequate to make changes in the priority outcomes targeted.** Strong political pressures may exist to fund everyone, but State prevention staff must determine whether

such pressures might lead to dissipating resources so broadly that no entity has adequate funding to achieve change. Within the SPF SIG project, only a few States were able to consider such a model given their population and/or geographic size. If States determine that adequate funds exist to fund all relevant sub-state entities, an equity model might be considered.

Thus, an equity model is relevant only in cases where the targeted problem is widely and uniformly distributed *and* there are sufficient resources to distribute funding evenly without diluting their potential to effect change.

If an equity model is chosen and the majority of the sub-State entities are successful in reducing the rate of the targeted problem in their coverage areas, it is likely the State will see a concomitant reduction in the overall rate for the State. With the level of funding provided by the SPF SIG, States with small populations might consider an equity model and expect positive State-level outcomes. States with large populations, however, are not advised to select such a model because of the likelihood of diluting the effect of funded programs, practices, and policies.

Highest Contributor Planning Model

The highest contributor model uses the State's overall number of priority problem cases as the metric for comparing sub-State entities. This model identifies areas which, according to the data, contribute the highest number of cases to the overall State total; herein, the absolute number of persons affected by the priority problem is identified and ranked to identify those highest contributors warranting attention. For example, a State prioritizing alcohol-related motor vehicle crashes in a highest contributor model may use county level data to identify counties with the highest numbers of alcohol related motor vehicle crashes. Keep in mind that the number of cases, not the number of cases relative to population size (which would be a rate), is the focus of this highest contributors approach. Looking at data from this perspective often indicates that highly-populated areas, contribute a large number of cases to the State's total priority problem (even thought they might actually have a low rate when the number of cases is divided by a large population size).. By contrast, a less populated area contribute fewer cases to the overall State total of the priority problem, but then present a higher rate when these cases are divided by a small population size. For example, a county with a population of 1 million residents might have a relatively low rate of 5.4 cases per 100,000 but would 54 cases to the statewide occurrence of the problem. In contrast, a low-population area with a considerably higher rate of 19.3 cases per 100,000 in which there were only 25,000 residents would contribute just 5 cases to the State-level problem.

Allocation based on highest contribution concentrates funding within a subset of communities or regions that contribute the hightest number of cases to the State total. **Allocation according to this model has the potential to improve Statewide rates when decreases within communities accounting for a large number of the State's cases likely lead to decreases at the State level.** It is unlikely, however, that small communities will be funded under such a plan. Even small communities with relatively high rates of the State's priority concerns simply will not have the number of cases that larger communities do.

Highest Rate Planning Model

The highest rate planning model (often referred to as highest need) directs funding to the communities or regions that have the highest rate vis-à-vis the priority substance use pattern or substance-related consequence. For example, a State addressing underage drinking in a highest rate or need model may use county data from student behavioral surveys that indicates proportions of youth reporting any or binge drinking in the last 30-days (NOTE: rates of alcohol related motor vehicle crashes among persons under age 21 can be used as a proxy for underage drinking if a direct measure of underage drinking is not available at the level needed). In contrast to the highest contributor model which examines community contributions to the State total, the highest rate planning model compares each sub-State entity's cases to its own population to see how prevalent the problem is within different regions or groups. According to this model, the absolute number of people affected not the focus. Rather, the extent of the problem across communities is expressed relative to each community's population (rates) are compared.
Like the highest contributor model, the highest rate model concentrates funding within a subset of communities, but it has less potential to improve Statewide rates. Because rate is a function of population, it is possible for even very small communities to have high rates. **The decision to allocate funding according to the highest rate model, then, signals a commitment to decreasing the problem where it is being felt most acutely, and can reasonably be expected to substantially lower rates in the target areas. However, there should be less expectation that the project will yield decreases at the State level, unless the highest rate communities are also the most highly populated areas.**

Hybrid Planning Model

At times it may be apparent that application of a single planning model will not allow the State to disperse funding in a way that will sufficiently address the target problem, especially across varied sub-State contexts. In this case, a hybrid allocation model, which combines the highest contributor and highest rate approaches into a planning model, can be considered.

The hybrid model concentrates funding in hot spots defined by both numbers and rates. **By crafting such a data-guided allocation approach a State maximizes its opportunity to achieve a decline in the number of Statewide occurrences as well as targeted rate reductions in highly affected communities.** Moreover, a hybrid model may help a State achieve greater parity across different community types (e.g., urban, suburban, rural, frontier).

Other Contextual Influences on Data-guided Resource Allocations

The three basic allocation planning models and the hybrid model discussed above are common ways in which distribution of the SPF SIG funds has been conceived. Two notable variations on those themes exist among SPF SIG States. First, there are States that have selected a regionally stratified planning model. This may be a choice in States in which the substance prevention infrastructure is comprised of regional entities that have historically played a significant role in planning and administration, and where a high emphasis is placed on preserving that structure. **If a State commits to making some type of allocation within each region *before* it considers the more substantive issues related to data-guided allocation planning, then this approach can be described as a regionally stratified planning model.** After stratifying by region, and upon completing the allocation planning process, that State's planning model can be described

best by the type of plan that will apply *within* regions; for example, a regionally stratified highest rate model.

A community stratified planning model is somewhat similar to a regionally stratified planning model in that it begins with a commitment to make some type of allocation to areas across the State, but the basis for allocating resources is not rooted in the substance abuse prevention infrastructure. This approach has been employed in Mountain States with small urban populations and large rural and frontier areas. These States have determined prior to examining epidemiological data on problem prevalence that each type of "community" will receive an allocation. The level of resources within each "community" type will then be determined based on epidemiological data-based factors.

Table 1. Comparisons across Allocation Planning Models

Planning Model	Recipients of Resources	Implications for Problem Reduction
Equity	All communities	Spread of resources may reduce impact Reduction of problem in State/Jurisdiction/Tribe dependent on which communities are successful
Highest Contributors	Subset of communities that contribute most number of cases to overall Statewide problem	Favors larger population areas High potential to reduce total problem incidence at State/Jurisdiction/Tribe level
Highest Rates	Subset of communities where problem (relative to community population size) is being experienced most acutely	Smaller population "hot spots" may get funded even if they don't contribute most to total cases Less likely than highest contributors model to impact overall problem occurrence
Hybrid	Subset of communities based on different conceptions of need (i.e., contribution, rate)	Maximizes opportunity to achieve a decline in number of Statewide occurrences as well as targeted rate reductions in highly affected communities Overall problem reduction tied to relative mix of high contributor versus high rate communities funded
Stratified	Subset of communities across a range on a variable of interest (e.g., population density) before applying need criteria	Ensures that resources are distributed by need within other dimensions of importance Problem reduction may be attenuated by communities at low end of continuum of variable used for stratification (e.g., low capacity, low population density) as well as need criteria (high rate vs. high contributor) Trade off in problem reduction may be acceptable if other considerations (e.g., building prevention resources where low capacity exists, equity across areas of varying population densities) are highly valued

To pick the most appropriate resource allocation planning model, States must carefully consider how need as defined by data about the priority is distributed. If data indicate that the priority is widespread – that is, the target problem affects communities fairly equally and consistently across the State – then an equity model may be most appropriate. However, it is not always practical to spread funding across an entire Statewide substance prevention system, particularly in States with large populations. In such cases, States may determine that the potential benefits of targeting funding to high need communities (i.e., high contributor or high rate) may outweigh the greatest potential drawback – the possibility of little or no change in the target indicator. A comparison of the data-guided resource allocation planning models discussed in this section is presented in Table 1.

Data-driven Resource Allocation

Identifying Resource Allocation Indicator that Reflects Priority(ies)

If a State selects a resource allocation planning model that applies data (rate and/or contribution), then it must identify places of high need according to that planning model. It should begin by identifying the unit of analysis (region, county, age group, etc.) for allocation and select the best available indicator(s) that measures the State level priority at the desired sub-State level. In many cases, the State may have made a decision about the unit of analysis very early on; subsequent layers of decision making, especially as informed by epidemiological assessment and prioritization results, may lead to a more deliberate process to determine the best allocation model irrespective of an established pattern of resource allocation. For the SPF SIG, which encourages community-led planning activities, it may make sense for States to allocate funding according to the geographic units by which sub-State entities naturally tend to identify themselves (e.g., cities, counties). No matter how the decision is made, it will have implications for determining which indicator(s) will be most useful in determining need.

The most straightforward approach to linking a State priority with indicator data to determine resource allocations would be the identification of one indicator that is a direct or very close reflection of the state priority. In this way, decisions about allocation would be a simple function of funding communities that demonstrate greatest need, by number or rate, based on a single indicator. For example, if a State has selected underage drinking as its substance prevention priority, then selecting self-reported binge drinking among youth as a priority indicator would be an appropriate choice, as it represents a severe form of problem drinking within the underage population. Likewise, if alcohol-related traffic crash death and injury is the State's priority, alcohol-related traffic crash deaths would be an obvious indicator on which to base allocations.

In some cases, States may determine a need for using multiple indicators for allocating resources to address a single priority. For example, a State that identifies underage drinking as a priority may identify 30-day binge drinking among youth as well as alcohol related vehicle crashes among persons under age 21 to represent their priority and guide allocations. Keep in mind that upon assessment, the State Epidemiological Profile and other data-related products are a rich source of information to guide consideration of data-guided resource allocations. In this example, the State may decide to utilize multiple indicators because the extent of the underage drinking problem is more clear when looking at both consumption and consequence indicators. Finally, if prioritization resulted in multiple priorities, keep in mind that data indicators must be defined

and applied for each priority in order to carry out data-guided allocations to address each of them.

When two or more indicators are selected for one priority, it can be more difficult to determine how each should be used to assist in making decisions about resource allocation. States may find that examining the indicators separately provides one set of implications, but that understanding the combined data messages is difficult. States may design an approach to combine indicators into an overall kind of resource allocation approach. Continuing with the previous example, a State might choose to allocate funds to counties (i) with a youth alcohol-related traffic crash death rate that is equal to or greater than the Statewide rate and (ii) a binge drinking rate in the top 25th percentile.

To streamline the process for examining data, States may create a kind of data indicator index (i.e., single statistic) that results from combining multiple indicators. Creating an index may seem to streamline understanding by some kind of additive process which assigns equal importance to each indicator or a more complex process involving the weighting of individual indicators to assign them greater importance in the allocation process.

Despite their appeal, there are some limitations to using indexes for data guided resource allocation planning. Among the greatest drawbacks is the loss of critical information about how each component of an index affects the composite. When adding multiple indicators together, interpretation of index scores becomes difficult. If a particular county has a high index score comprised of three separate indicators, it is often difficult to know which indicator(s) contributes most to the score. Referring back to the data from which the index was created can answer the question, if it is available, but defeats the very purpose of using an index. Thus, it may be worth considering examining data from two or more indicators separately in a step process, or at least doing so prior to completing a kind of formula approach that combines many parts together.

The Absence of Indicator Data

What options are available when there may be less available data (especially sub-State) to define the substance prevention priority? A State may indeed find that there is no indicator available at the unit of analysis it has chosen for allocation purposes (e.g., region, county, etc.). Or, when a State's priority problem is not as straightforward as deaths from alcohol-related traffic crashes, the State may have a harder time finding a closely related indicator. A proxy indicator, a measure that is conceptually related to the priority problem though not a direct assessment, can be a good alternative. For instance, if a State has prioritized underage drinking, it might select alcohol-related traffic crashes involving youth under age 21 as a closely related proxy measure [please insert PA and/or MO examples of proxies to also make this more real].

Another way of addressing the absence of an appropriate indicator at the sub-State level is to generate sub-State indicator estimates from Statewide data. Frequently, however, some of the best data sources for State-level data do not immediately appear to produce reliable sub-State estimates, particularly in one sample year. In such instances, more reliable estimates are possible by merging several years of data. Consider, for example, a State's selection of alcohol-related traffic crash deaths as the indicator to guide resource allocation and the possibility that some counties would have few or no crashes in the most recent year or two that the data was collected.

By compiling five years of data, one might be able to create a full data set with figures for every county and make allocation decisions based upon these, more available and stable figures. The primary drawbacks of such an approach is that by collapsing several years of data, one loses information about trends across time as well as older data may not represent the current consumption rates.

Finally, in the absence of good sub-State indicator data, a State may choose to generate synthetic estimates as a last resort. In order to generate synthetic estimates, one must have a reliable Statewide figure for the indicator of interest and information about the distribution of other important, related variables within the sub-State regions of interest. For instance, if a State has reliable Statewide data on binge drinking among youth, but it does not have sub-State estimates, the State could use the State-level binge drinking data, along with information about other key variables at the sub-State level (e.g., demographic data, consumption and consequence data related to the priority) to generate synthetic estimates of binge drinking for each sub-State area. Clearly, this is the least desirable approach to data-based resource allocation since it is in essence an artificial estimate. However, in the absence of data good sub-State indicator data on the priority problem, it is a valid approach for guiding resource allocation.

Considering Variables Beyond Need

Although identification of resource allocation indicators that describe the priority represents the core of many resource allocation planning models, in some cases States may wish to account for additional factors when making funding decisions. This may be particularly likely when there are wide disparities across the State in variables such as prevention capacity, resources, and readiness. When a State's prevention infrastructure is strong, there are generally few concerns about the capacity and readiness of entities to implement the interventions that will eventually be selected to address State priorities. When the prevention infrastructure minimal or weak, however, it is advisable to give some consideration as to whether there are entities capable of organizing and implementing interventions; particularly in areas that merit a significant investment of resources in light of indicator data. Additionally, large discrepancies in the extent to which a priority problem affects diverse populations may suggest the importance of including demographic considerations in the allocation process. For example, the State of New Mexico gave extra points to proposals representing broad community initiatives that specifically focused on particular population groups—Native American males and Hispanic males—that suffer inordinately high rates and numbers of deaths, respectively, from alcohol-related motor vehicle crashes.

Applying Planning Models: Examples

After wedding a State planning model to appropriate indicators, it is possible to anticipate a variety of feasible resource allocation approaches. For the purpose of consistency and efficiency, all of the resource allocation models described below employ the county as the unit of analysis/allocation. Given variability in context across SPF SIG grantees, other site examples may illustrate the use of alternative and more appropriate units of analysis such as Tribes or municipalities.

Consider the **equity** model (a non-data-guided model), where all counties would get money to implement prevention programs, practices and/or policies targeting the priority problem. If the

priority problem is drunk driving and the allocation indicator is alcohol-related motor vehicle crashes, then each county would get money to target reductions in those crashes. A variation on the model might call for adjustments in the allocation amount based on the population of each county. It is worth reiterating that this approach is not ideal for large states with many counties, but rather would be best suited for small states with few counties/communities.

An example of applying the equity model for SPF SIG resource allocations comes from the 10 Wisconsin American Indian Tribes that participate in the Great Lakes Inter-Tribal Council (GLITC) SPF SIG. Based on problem prioritization, the GLITC Advisory Council identified two alcohol consumption patterns as priority concerns: binge drinking and underage drinking. For distributing SPF SIG funding, the Advisory Council chose to provide each Tribe with 1/10 of the sub-recipient funding amount. The Advisory Council reasoned that substance abuse patterns were equally important amongst the Tribes and that while the larger populated Tribes may have more people with needs, they are also further along the process with more sophisticated prevention systems already in place. Thus it seemed fair to reason that allocating the funds to each Tribe equally was the best method. In addition, the needs assessment showed a degree of uniformity of "high need" related to this priority as distributed across all Tribes in the project.

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To make allocations based on the **highest contributors**, a state would generate a list of counties by the number of cases or respondents for the allocation indicator, ranking them from highest to lowest. Allocations could be made to counties with at least a minimum number of cases, to counties above a certain percentile, or to any number of the "top" counties (i.e., those with the highest number of cases or respondents) as resources allow. In the case of alcohol-related motor vehicle crash fatalities, a State could choose to fund (or consider applications from) counties with more than 10 deaths in the reporting period as a way of prioritizing the highest contributors.

In **Massachusetts**, the problem priority selected for intervention was the prevention/reduction of opioid-related health consequences, specifically on unintentional fatal and non-fatal opioid overdoses. A modified highest contributor funding model was selected for dispersing SPF SIG funds to eligible communities. To be eligible to apply for funding, municipalities had to meet the minimum criteria of having an average of 30 or more cases of unintentional fatal and non fatal opioid overdoses during the 3-year period from 2003-2005. The rationale for choosing a minimum average number of 30 cases over a 3-year period was to ensure that 1) there were sufficient cases to warrant an intervention and 2) there were sufficient cases for statistical testing to assess whether significant changes in opioid overdose occurred after the intervention. Focusing on the number of cases rather than crude rate also avoided the situation of funding a community with a few thousand people that has a very high crude rate driven by the presence of very few (perhaps a half dozen) overdose cases.

Texas also used a highest contributor allocation planning model to disperse SPF SIG funds to address its priority concern, binge drinking among 12 to 25 year olds. The State used a proxy indicator for binge drinking, alcohol involved drivers in fatal crashes. To identify the geographical areas where the problem is most frequent, the epidemiological workgroup obtained the total count of events or episodes (e.g., total number of fatalities) and calculated the percentage attributable to each county, taking the total count of episodes as the denominator and

the episodes per county as the numerator. Then, among the seven highest need counties, 11 communities were selected based on a funding formula that weighted the resource allocation indicator (60%) and the population aged 12 to 25 (40%).

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The **highest rate** planning model dictates allocations based on sub-State entities' rates or percentages, rather than Statewide numbers. If a State wishes to use this approach it would begin by generating a ranking of counties by allocation indicator rate or percent. Allocations then could be made to counties in which the rate is at or above the Statewide rate, or whose rates fall above a certain percentile ranking. Continuing with the same example, the State might review the rankings and select the 10 counties with the highest rates for funding. It is worth noting that a ranking based on traffic crash fatality rates may yield a surprising result. It has been an observed pattern nationwide that small communities often have higher rates of alcohol-related traffic fatalities than larger communities.

Arkansas used a highest rate resource allocation model after it identified underage drinking and alcohol-related motor vehicle crashes with injuries or fatalities as its two priority problems. Arkansas is primarily a rural State with two areas of population density. Although the high density counties contribute more to the State's problem cases, they also have the highest resources. Because it adjusts for population, the State chose a high rate planning model to guide allocations to focus staff support and funding resources in areas with high need that have the potential for developing high capacity but currently have low resources. As for assessing which counties were considered to be highest need, the top quartile of counties for each priority indicator—past month underage drinking, past two-week underage binge drinking, and alcohol-related traffic crashes and fatalities—were given extra points in the competitive scoring process.

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Again, in seeking to maximize the opportunity to make desired changes, a State may opt for a **hybrid allocation** model, using a combination of the highest contributor and highest rate approaches. Having rankings of counties by both number and rate, the State would simply define the criteria for both indicators and the manner in which they would be considered jointly. For example, a State targeting alcohol-related motor vehicle crashes may select communities with a minimum number of fatal crashes a year *or* above a certain rate.

Several States used a hybrid high need/high contributor model to guide allocation decisions. For example, **New Mexico** chose to focus SPF SIG efforts on reducing alcohol-related motor vehicle crashes (ARMVCs) among 15 to 24 year olds. Resource allocation decisions were based on several factors—need as well as resources, capacity, and readiness. In terms of need, applicants were assessed as high if they fell in the top one third of counties with highest ARMVC death rates or the top one third of counties with the highest number of ARMVC deaths.

Kansas identified underage drinking (binge drinking and 30-day use) as its prevention priority. The State used a combined formula based on county ranking of high need and contribution on youth binge and 30-day alcohol use.

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If a State decides to use a **stratified** model, it must begin by identifying the dimension on which it is committed to allocating funds before it considers the other variables at the core of resource allocation such as need. Stratification can be based on numerous variables. Above it was noted that a State may stratify based on entities such as counties that have typically been the vehicle for substance abuse prevention administration and implementation (regionally stratified planning model). Alternatively, a community stratified planning model would start with a characteristic of communities such as population density (e.g., rural/urban/frontier) or key affected or underserved population groups (e.g., percent of population Native American or Hispanic) to ensure that sub-groups along the dimension of interest receive some level of funding. After the stratification dimension has been selected, the core resource planning variables may be applied (e.g., highest contributor, highest rate). Such a planning model ensures that resources are distributed by need within other dimensions of importance.

Colorado used a stratified resource allocation model to ensure that funds were dispersed to urban, rural, and frontier communities to address underage drinking. After stratifying communities based on population density, the State sought to fund those within each type of region that were highest need based on their problem rates.

Illinois used a high need stratified by capacity model for dispersing SPF SIG funds to address its three problem priorities—alcohol-related motor vehicle crash deaths, episodic binge drinking, and underage drinking. A Resource and Capacity Assessment was conducted to assess the infrastructure in place at the community levels to support the SPF process and the ATOD Statewide priorities identified by the Statewide Advisory Council. Communities were stratified according to the capacity of their prevention systems (high, medium, and low) and then the criterion of highest need was applied to communities in the three capacity categories.

Allocation Mechanisms

After selecting a priority problem and determining the best allocation planning model and indicator(s) on which to base allocations, the mechanism by which allocation will occur must also be determined. In keeping with the SPF's emphasis on data-driven planning, the ideal allocation mechanism would be simply funding communities where need has been clearly demonstrated by proper indicators. Such allocation could be made by invitation (or as a mandate) based solely on the State's analysis, or could include an application process by which communities would indicate a desire to have the funding and detail initial plans for its use.

States may also initiate a competitive proposal or application process. Some States are required by law to conduct an open RFP process for all funding, or funding above a certain dollar amount. Working within such rules, States trying to maintain the integrity of the data-driven assessment and planning activities may encounter challenges. There are some ways, however, that States can adhere to statutory requirements for open bidding and remain true to the spirit of the SPF model. For instance, it may not violate applicable rules to limit the RFP process to a sub-set of applicants based on selected criteria, or to weight need more by assigning extra points in the review process if the RFP must be completely open to all interested parties. As an example of

the latter case, in **New Mexico** the competitive funding process is open to all communities. However, through a weighted scoring process additional points were awarded to ensure that the allocation planning model dispersed resources to critical need geographic areas (10 points) and critical need population groups (10 points). To emphasize matching resources to need, the State also awarded an additional five points to counties whose resources are lower per capita than their critical need would suggest is appropriate.

In cases where multiple funding criteria are being used (e.g., hybrid planning models, models based on need plus other variables such as readiness and capacity), a funding formula may be developed to facilitate decision-making. For example, **Kansas** used a hybrid planning model of high need/high contributor to address underage drinking. A combined formula based on county ranking of high need (X3) and county contribution on youth drinking and 30-day use was used to determine where need was highest.

Texas used a highest contributor allocation planning model along with a population variable to disperse SPF SIG funds to address its priority concern, binge drinking among 12 to 25 year-olds. After identifying the seven counties where the problem is most frequent (i.e., highest contributors to the Statewide problem), a funding formula that weighted the resource allocation indicator (60%) and the population aged 12 to 25 (40%) was used to select 11 communities for funding.

For more information on different States' approaches to resource allocation, see the Appendix. The matrix therein summarizes each State's problem priorities, resource allocation planning model adopted to guide allocation decisions, the resource allocation indicator(s) used, the application process used to make allocations, the number of grantees funded, and the outcome expectations from the sub-recipient funding process. Those interested in more detailed information should search online for a State's SPF SIG Initiative web site.

Summary

Data-guided resource allocation is a critical step that stems from SPF SIG Assessment and Prioritization efforts and outputs. Once priorities are established by data, resources should then be allocated based on data about the priorities so that how States allocate resources is informed by data about what they are trying to change. Such an approach can help States continue data-guided decision making to achieve SPF SIG goals of reducing substance use and related consequences.

It should also be clear in the preceding sections that no one allocation approach is best. The appropriateness of any approach for a State will depend on a number of contextual factors such as the size of the State, characteristics of its existing prevention infrastructure, the selected prevention priority, available resources, and other features.

Despite such variation, a common set of considerations applies to all sites in the process of using data to make decisions about resource allocation First, discussions about data-guided resource allocations should be informed by previous assessment and prioritization processes and products; States should use what they have learned in previous steps as they begin to think about using data to inform and guide allocations. Second, think carefully about selecting multiple priorities.

Not only are SPF SIG resources limited (in amount and time duration for using them), but the selection of multiple priorities requires selection and application of multiple indicators for applying a data-guided resource allocation process. As described in site examples, such work is not impossible, but certainly more complex. Similarly, the number of indicators, even for one priority problem can complicate the allocation process. One must decide whether to use multiple indicators in a step decision-making process or to combine indicators into an index in spite of the potential drawbacks to this approach.

The availability of sub-State level data is also a major concern in the resource allocation planning process. Under ideal circumstances States have access to accurate, reliable sub-State estimates for the indicator(s) they have chosen. If not, several alternative approaches have been offered in this document that can serve as other options when the best indicators are not available. These options include using proxy data, merging multi-year data, and generating synthetic estimates.

Mindful of these realities and challenges, States are strongly encouraged to use a data-driven approach to inform resource allocations as a critical next step for outcome-based prevention and effecting change in substance use and related consequences. As outlined in the set of site applications of these ideas, many sites are taking solid steps to use data to understand problems and make targeted decisions about addressing them. As such, data-guided resource allocations aim to enable investments to target areas and populations defined as needing targeted resources, and to continue to use such data to monitor performance, document change, and improve the overall health of people and save lives.

Appendix: Data-Guided Planning Components for SPF-SIG States

Site	State Priority(s)	State Planning Model	Resource Allocation Indicator - Need	Resource Allocation Indicator - Other	Application Process	Grantees	Outcome Expectations
AR	• Underage drinking • ARMVI & ARMVF	High need	Indicators of high need for priorities (underage drinking, ARMVI & ARMVF)	High capacity Low resources	RFP	12-15 ($100-150K)	Reduction in targeted priority in funded communities
AZ	• Problematic drinking, 12-25 (binge drinking. alcohol use 12-18, ARMVC/binge drinking 18-25) • Illicit drug use, 12-18	Hybrid high need/ high contributor	Indicators of high need for priorities (problematic drinking in 12-15, Illicit drug use in 12-18)	NA	RFP	10-15 ($100-350K)	Reduction in targeted priority in funded communities
CO	• Underage drinking	High need stratified by region (rural, urban and frontier)	Indicators of high need on index of substances	Readiness History of collaboration	RFP (eligible communities requested to apply)	14 ($50K for assessment, planning, amount TBD)	Reduction in underage drinking in funded communities and statewide
CT	• Alcohol	NA (all communities eligible to apply)	NA	Existence of Coalition	RFP (communities identify priorities in their application)	15-25 ($50-100K)	Reduction in state and community level alcohol use and related consequences